

074066-0104

Amendments to the Claims

Please add claims 34-37 as follows. The following list of claims is complete and supercedes all prior lists of claims.

1. (Previously presented) In a carrier solution for the introduction and washout of vitrifiable concentrations of cryoprotectants in a cell, tissue or organ, the improvement comprising inclusion of mannitol and lactose in the solution.
2. (Previously presented) The solution of Claim 1 further comprising vitrifiable concentrations of cryoprotectant.
3. (Previously presented) The solution of Claim 2 wherein said cryoprotectant comprises dimethyl sulfoxide, formamide, and ethylene glycol.
4. (Previously presented) The solution of Claim 2, wherein said cryoprotectant comprises polyvinyl alcohol, or a copolymer of vinyl alcohol and vinyl acetate.
5. (Cancelled)
6. (Previously presented) The solution of Claim 2, wherein said cryoprotectant comprises polyglycerol.
7. (Previously presented) The solution of Claim 2 wherein said solution comprises polymers selected from the group consisting of: polyglycerol, polyvinylpyrrolidone, polyvinyl alcohol, a copolymer of vinyl alcohol and vinyl acetate and sucrose;

and wherein said solution has a tonicity of 1.2 to 2.0 times that of a solution that does not cause osmotic volume changes of said cell, tissue or organ.

8. (Previously presented) A method for the introduction and washout of vitrifiable concentrations of cryoprotectants in a cell, tissue or organ, comprising:

adding the solution of Claim 2 to said cell, tissue or organ; and

removing the solution from the cell, tissue or organ.

9. (Previously presented) A method for the cryopreservation of living systems by vitrification comprising:

adding a solution comprising, mannitol, lactose, and vitrifiable concentrations of cryoprotectant to said living system; and

cooling said living system to a desired temperature.

10. (Previously presented) The solution of Claim 1, further comprising glucose.

11-12. (Cancelled)

13. (Previously presented) The solution of Claim 10 further comprising, 45 mM mannitol, 45 mM lactose, 7.2 mM potassium phosphate, 1 mM calcium chloride, 2 mM magnesium chloride, 5 mM reduced glutathione, 28.2 mM potassium chloride, 10 mM sodium bicarbonate, and 1 mM adenine HCl.

14. (Cancelled)

074066-0104

15. (Previously presented) The solution of Claim 10, wherein said solution has a tonicity of between 1.1 to 2.0 times that of a solution that does not cause osmotic volume changes of said cell, tissue or organ.

16-18 (Cancelled)

19. (Previously presented) A solution for the introduction and washout of vitrifiable concentrations of cryoprotectants in a cell, tissue or organ, comprising, mannitol, lactose, and one or more cryoprotectants in an amount sufficient for vitrification of an organ.

20. (Previously presented) A solution for the introduction and washout of vitrifiable concentrations of cryoprotectants in a cell, tissue or organ, comprising mannitol, lactose, polyvinyl alcohol, or a copolymer of vinyl alcohol and vinyl acetate.

21. (Previously presented) A solution for the cryopreservation of living systems by vitrification comprising mannitol, lactose, and vitrifiable concentrations of cryoprotectant, wherein said cryoprotectant comprises polyglycerol.

22. (Previously presented) The solution of Claim 1, wherein said solution has a tonicity of between 1.1 to 2.0 times that of a solution that does not cause osmotic volume changes of said cell, tissue or organ.

23-24. (Cancelled)

25. (Previously presented) The solution of claim 1 wherein the lactose and mannitol are each present at 45 mM.

074066-0104

26. (Previously presented) The solution of claim 1 further comprising 10 mM bicarbonate.

27. (Previously presented) The solution of claim 2, further comprising 22.305% w/v dimethyl sulfoxide, 12.858% w/v formamide, 23.837% w/v ethylene glycol, and 1% w/v X1000, 4% w/v decaglycerol in LM5 carrier.

28. (Previously presented) The solution of claim 2, further comprising 22.305% w/v dimethyl sulfoxide, 12.858% w/v formamide, 16.837% w/v ethylene glycol, and 1% w/v X1000, 4% w/v decaglycerol, and 7% w/v acetol in LM5 carrier.

29. (Previously presented) The solution of claim 2, further comprising 22.305% w/v DMSO, 12.858% w/v formamide, 16.837% w/v ethylene glycol, 1% w/v X1000, 1% w/v decaglycerol, and 7% w/v polyvinylpyrrolidone 5,000 in LM5 carrier.

30. (Previously presented) The solution of claim 7 having a tonicity of 1.2 to 1.5 times that of a solution that does not cause osmotic volume changes of said cell, tissue or organ.

31. (Previously presented) The solution of Claim 10 wherein the mannitol is present at 45 mM and the lactose is present at 45 mM, and further comprising 7.2 mM potassium phosphate, 5 mM reduced glutathione, 28.2 mM potassium chloride, 10 mM sodium bicarbonate, and 1 mM adenine.

32. (Previously presented) The solution of claim 31 further comprising 1 mM CaCl_2 and 2 mM MgCl_2 .

33. (Previously presented) The solution of claim 10, wherein the glucose is present at a concentration of 90 mM.

34. (New) The solution of claim 1, further comprising PVP 5,000.

35. (New) The solution of claim 2, further comprising PVP 5,000.

36. (New) The solution of claim 19, further comprising PVP 5,000.

37. (New) In a carrier solution for the introduction and washout of vitrifiable concentrations of cryoprotectants in a cell, tissue, or organ, the improvement comprising inclusion of trehalose and lactose in the solution.